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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,757

11/18/2003

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06429 USA

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EXAMINER

PATEL, VINI T H

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/715,757

Applicant(s)

LICHT ET AL.

Examiner

Vinit H. Patel

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 18Nov03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

The Applicant's election with traverse in the reply filed on January 12, 2006 is acknowledged. The traversal is found persuasive and claims 1-36 will be examined on the merits.

Claim Warnings

Applicant is advised that should claims 1-9 be found allowable, claims 28-36 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9, 18, 27 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in

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the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims are directed to a process wherein a fluid is added to the syngas and byproducts produced by the first reactor prior to introducing the syngas and byproducts into the second reactor. However no such mention of this limitation appears in the specification or any detail of what the fluids comprises is present anywhere in the specification, including the claims. See MPEP § 2164 et seq.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims are rejected under 35 U.S.C. 102(b) as being anticipated by Wada, USP 3,682,605.

Regarding the following claims, Wada teaches:

1, 19 and 28. A process for or method for the entrained soot removal by exothermic generation of syngas by the partial oxidation of a hydrocarbon-containing fuel comprising in an apparatus having a first (zone) reactor and second (zone) reactor (C1/L39-43, Fig. 5): (i) reacting the hydrocarbon-containing fuel with an oxygen containing gas in a first reactor (upper zone) to produce the syngas and byproducts comprising CO.sub.2, H.sub.2O and soot (C6/L5-20); and (ii) introducing the syngas and byproducts into a second reactor (lower member) containing a non-carbonaceous (heat insulating block) material that traps the soot for a sufficient time such that the majority of the byproduct soot is gasified via reaction with the byproduct CO.sub.2 and/or H.sub.2O to produce a syngas stream that is depleted in the soot (C5/L51-

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C6/L20; Fig. 5).

3, 21 and 30. The process wherein substantially all of the byproduct soot is gasified in step (ii) (C6/L35-44).

4, 22 and 31. The process wherein the non-carbonaceous material comprises alumina (C6/L36).

5, 23 and 32. The process wherein the non-carbonaceous material contained in the second reactor is in the form of spherical particles (brick) (C6/L36).

6, 24 and 33. The process wherein the non-carbonaceous material contained in the second reactor is in the form of rings (Fig. 5).

10. An apparatus for the exothermic generation of syngas by the partial oxidation of a hydrocarbon-containing fuel comprising: (i) a first reactor (upper zone, Fig. 5) for reacting the hydrocarbon-containing fuel with an oxygen containing gas to produce the syngas and byproducts comprising CO_2 , H_2O and soot; and (ii) a second reactor (lower zone, Fig. 5) for receiving the syngas and byproducts containing a non-carbonaceous material that traps the soot for a sufficient time such that the majority of the byproduct soot is gasified via reaction with the byproduct CO_2 and/or H_2O to produce a syngas stream that is depleted in the soot (C5/L52-C6/L20, Fig. 5).

12. The apparatus wherein substantially all of the byproduct soot is gasified in the second reactor (C6/L35-44). Furthermore the material worked upon by the apparatus does not further limit apparatus claims. See MPEP 2115.

13. The apparatus wherein the non-carbonaceous material comprises alumina (C6/L36).

14. The apparatus wherein the non-carbonaceous material contained in the second reactor is in the form of spherical particles (brick) (C6/L36).

15. The apparatus wherein the non-carbonaceous material contained in the second reactor is in the form of rings (Fig. 5).

17. The limitation wherein first and second reactors are operated in a temperature range from 2100 F to 2800 F is a manner of operating the apparatus and does not differentiate the claim from the prior art. See MPEP 2114.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 11, 20 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada, USP 3,682,605 in view of Kobayashi, USP 6,113,874.

Regarding the following claims:

2 and 29. Wada teaches all of the limitations as applied to claim 1 above.

Kobayashi teaches a POX process wherein there is a recovering of a portion of the heat from the soot depleted syngas stream and using at least a portion of the recovered heat to facilitate the additional production of syngas via the (endothermic) catalytic reforming of natural gas (methane) and steam (C7/L20-35), and it would have been obvious to one of ordinary skill in the art to modify Wada to include the heat recovery step of

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Kobayashi for the purpose to provide a process with better overall thermal efficiency (C7/L33).

11 and 20. Wada teaches all of the limitations as applied to claim 10 or 19 above. Kobayashi teaches a heat exchange reformer (Fig. 4, configuration utilized in heat recovery process) for recovering a portion of the heat from the soot depleted syngas stream and using at least a portion of the recovered heat to facilitate the additional production of syngas via the (endothermic) catalytic reforming of natural gas and steam (C7/L2035).), and it would have been obvious to one of ordinary skill in the art to modify Wada to include the heat recovery configuration (reformer/heat exchanger) of Kobayashi for the purpose to provide a process with better overall thermal efficiency (C7/L33).

Claims 7, 16, 25 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada, USP 3,682,605 in view of Van et al., JP 05208134A

Regarding the following claims:

7, 16, 25 and 34. Wada teaches all of the limitations as applied to claim 1 or 10 or 19 above. Van teaches wherein the non-carbonaceous material contained has a catalytic functionality to facilitate the gasification of the soot (Abstract), and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wada with Van for the purpose to provide a process with an increased reaction rate at a high gas velocity (Abstract).

Claims 8, 26 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada, USP 3,682,605.

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Regarding the following claims:

8, 26 and 35. Wada does not explicitly teach that the first and second reactors are operated in a temperature range from 2100 F to 2800 F, but does teach reaction temperatures to about 2100 F (C4/L29). As such a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See MPEP 2144.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinit H. Patel whose telephone number is (571) 272-0856. The examiner can normally be reached on 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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